

## **ABSTRACT**

5           Methods and pharmaceuticals for inhibiting or preventing metastasis formation in  
animals, including humans, having primary tumors, through the administration of  
phosphorothioates including their thiol and disulfide metabolites are disclosed. These  
compounds stimulate angiostatin levels, inhibit matrix metalloproteinases (MMPs), and  
stimulate manganese superoxidase dismutase (MnSOD). Phosphorothioates, of which  
amifostine is an example, can be administered as a combination therapy with traditional  
10 cancer therapies, including chemotherapy, radiotherapy, surgery, immunotherapy,  
hormone therapy and gene-therapy. Inhibition or prevention of metastasis by  
phosphorothioates is independent of tumor type, including adenocarcinomas and  
sarcomas.